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26 April 1954

MEMORANDUM FOR: ASSISTANT DIRECTOR, CURRENT INTELLIGENCE

ATTENTION : Special Policy and Security Staff

SUBJECT : Secure Film Carriers

1. Reference is made to various memoranda from the Office of Current Intelligence to the Technical Services Staff concerning secure film carriers, in particular the memorandum dated 9 December 1952, OCI-1065 and the memorandum dated 15 July 1953, OCI-5356.

2. A number of conferences have been held between members of TSS and OCI at which tentative specifications and desirable characteristics of a secure film carrier have been discussed. Liaison has been maintained with the National Security Agency and information on developments has been exchanged.

3. At a recent meeting it was felt that the work of TSS and NSA had progressed to a point where progress reports could be prepared describing the various approaches to this problem with the view in mind of laying these reports before the USCIB at its next meeting on 29 April for comment and evaluation. With this in mind TSS attaches herewith brief reports on the following:

a. The Incendiary File Destroyer Kit developed by TSS which has been approved as a standard military item by the Department of Defense and is now in production by them. Information on this item is included as being of interest since at any discussion involving secure film carriers, the question is always raised as to the possibility of carrying original documents together with means for their destruction.

b. Small Microfilm Carrier containing Chemical Means of Destruction. It should be pointed out that this device is not

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intended to be proof against planned unauthorized entry. It is designed merely to provide the courier with a means of destroying the film should he so desire and to provide for destruction should someone casually attempt to open the container out of idle curiosity.

c. Development of a Thin Base Film which could be used in any film carrier and which would at least double the capacity of any such device.

d. A Magnetic Wire or Tape Eraser which would be of use in the event that there is a need for secure transportation of magnetically recorded information.

4. TSS understands that the NSA is preparing a status report of its development project involving a secure film carrier designed to be proof against all unauthorized entry by any means whatsoever, even if the enemy possesses complete knowledge of the device's construction. It is hoped that a copy of this report will be furnished to TSS.

5. It is also felt that NSA would be interested in the reports on the work underway at TSS, particularly the thin base film, since a carrier designed to carry 100 ft. of regular microfilm could accommodate and destroy 200 ft. of thin base film without requiring additional chemicals or incendiary materials.

6. More complete technical information is available in TSS and will be gladly furnished if required.


Chief, DD/P/TSS

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Attachments: (4)

Report on Incendiary Film Destroyer Kit
Report on Microfilm Carrier containing Chemical Means of Destruction
Report on Thin Base Film
Report on Magnetic Wire or Tape Eraser

TSS/OC:cvsr/jel (24 April 1954)

Distribution:

Addressee - Orig. & 2w/attachments

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Attachment C

THIN BASE STRIPPING FILM

Although this film was developed by TSS for use in certain concealment devices, it appears that it may be of interest in connection with the development of a secure film carrier. The film is specially manufactured for TSS by the Eastman Kodak Company and consists of regular Kodalith Panchromatic emulsion about .001 inches thick on a thin base approximately .00325 inches thick. The total thickness of the film is therefore about .00425 inches which is approximately one-half the thickness of regular film.

In view of the thinness of the base, any device designed to carry a given number of feet of regular microfilm and provide means for its destruction could presumably carry twice as much thin base film.

It has been found that the thin base film burns relatively easily and quickly whereas the ordinary thick film base does not do so. The burning of the emulsion and base is not explosive in nature such as would be the case with a nitrate base. The burning, however, is rapid. This feature would facilitate the destruction of the film in a secure film carrier using incendiary materials.

Although the film is extremely thin, it presents no unusual problems, either while being developed or while being processed. Full technical information is available in the Applied Physics Division of TSS.

The fact that the emulsion itself can be stripped from its thin base is of primary interest in connection with concealment devices, although if only the stripped emulsion were packaged in a secure film carrier, its extreme thinness would allow a given container to carry six to eight times more feet of a stripped emulsion than regular film.

The advantages resulting from increasing the capacity of a secure film carrier would be balanced against the added time required to strip the film being transmitted and the added time required when making prints from the stripped emulsion. The extreme thinness of the stripped emulsion prevents its being handled in the usual printing

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machinery. It must be sandwiched between plastic or glass for this purpose. However, it is surprisingly strong and not easily torn when handled with ordinary care. Regular exposure and development procedures can be followed although the operator must be trained if use of the stripping feature itself is to be made.

A sample of the thin base stripping film from which the emulsion has not been stripped.

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Attachment D

MAGNETIC ERASER

Two types of magnetic wire erasing units are currently under development by TSS. The first involves a permanent magnet while the second makes use of an electromagnet. Both types are designed to erase two hours of Minifone wire or its volume equivalent. The permanent magnet type measures approximately 1" x 1-1/2" x 3" and erasing is accomplished by rotating a plastic spool containing the wire in the magnetic field between the poles of a horseshoe magnet. Actuation is by push button. The electromagnetic eraser measures approximately 1" x 2" x 3". A battery-capacitor power supply discharges through a toroidal coil inside of which wire has been wound.

Prototypes have been delivered to TSS and have proved entirely satisfactory under test. Six additional units for handling magnetic wire are on order and delivery is expected within 3 months. This same principle can be applied to the destruction of magnetic tape recordings.

This device was developed so that an agent could carry magnetically recorded information in his pocket and at a moment's notice destroy the information should this become necessary. For this reason, the present units are small in size. However, there would be no difficulty in developing larger units should it be so desired. Further information may be obtained from the Applied Physics Division of TSS.

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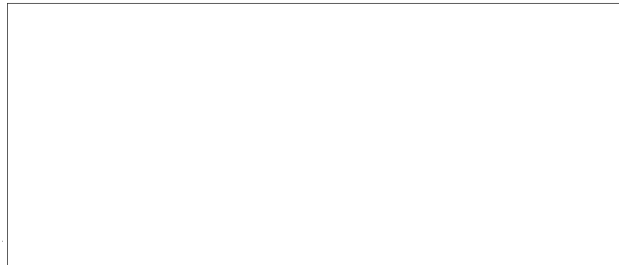
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Magnetic Eraser:

Two types of magnetic wire erasing units are currently under development: 1.) permanent magnet, and 2.) electromagnet. Each type will erase two hours of Minifon wire or its volume equivalent. The permanent magnet type measures approximately 1x1½x3 in. Erasing is accomplished by rotating a plastic spool containing the wire in the field between the poles of a horseshoe magnet. Actuation is push-button. The electromagnetic eraser measures approximately 1x2x3 in. A battery-capacitor power supply is discharged through a toroid, inside of which the wire has been wound.

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